

REMARKS

Claims 1-82 were originally filed in the United States (Serial No. 10/808,084) on March 24, 2004. Applicants responded to an Election of Species Requirement on October 30, 2006, and claims 3-5, 14, 15, 32-34, 43, 44, 69, 77 and 78 are deemed by the Office to be withdrawn.

The present Office Action was mailed on January 23, 2007. This Response is being submitted within three months after the shortened statutory period, and a petition and fee for an extension of time of three months in which to reply is submitted with this Response.

Claims 1, 2, 31, 62, and 66 have been amended in the present response. Reconsideration and allowance of claims 1, 2, 6-13, 16-31, 35-42, 45-68, 70-76, and 79-82, based on the amendments and remarks presented herein, are respectfully requested. Applicants further respectfully request rejoinder and allowance of claims 3-5, 14, 15, 32-34, 43, 44, 69, 77 and 78.

35 USC §112 Rejection

Claims 1-82 have been rejected under 35 USC §112, second paragraph, for reasons of record set forth in the Office Action at Page 2. Applicants respectfully traverse.

The Office Action questioned how the reaction products of claims 1 and 62 can still be silane-terminated (after reaction of silane-terminated components).

The silane terminated components comprise a silane-terminated polyurethane prepolymer component; a silane-terminated monomeric diisocyanate component; and optionally a trisilane, a tetrasilane, or a silane adduct component.

The silane end groups hydrolyze in the presence of an acid or a base, and water molecules contain the properties of both. Water need not be added to the silane

components as a reactant, as ambient moisture or humidity can spontaneously trigger the hydrolysis of silane to a silanol, and the subsequent condensation reaction to link the components.

However, any silane end group that does not react with another silane will remain in the reaction product as a terminal silane end group. Polymerization reactions generally do not proceed to 100% completion to form an infinite polymer network, due to excluded volume and spatial considerations. The unreacted silane end groups may thus remain as terminal silane groups.

Claim 62 has been clarified to recite “combining and reacting”. It is submitted that this clarification does not narrow the scope of the claims, as “simply combining” the components may trigger a spontaneous hydrolysis/condensation reaction to form the reaction product, as discussed above. In other embodiments, reaction of the components may be initiated catalytically or thermally.

Applicants respectfully traverse the allegation that “low molecular weight silane adduct” is indefinite. Such “low molecular weight silane adducts” are described with particularity and exemplified in the Specification at Pages 12 to 14. One of ordinary skill in the art would be apprised of the scope of the term “low molecular weight silane adduct” with reference to the Specification, as compared to the pre-polymer components, for which molecular weights have been disclosed in the Specification.

The term “low molecular weight silane adduct” contained in claims 6, 35 and 66 refers to optional components for reaction, to form the reaction product, as discussed in the Specification at Pages 12 to 14. Claims 1, 2, 31, and 62 have been clarified to recite the optional presence of at least one of the disclosed silane adducts, which may or may not comprise a trisilane or tetrasilane component. Support for these non-narrowing amendments is found in original claim 66, as well as in the Specification as cited above. Claim 66 is clarified to refer to the “component” of claim 62.

Silane adducts which may comprise a trisilane or tetrasilane component include, with reference to claims 6, 35, and 66, components a) through d), as each of these components comprise the reaction product of three or four silane compounds or two disilyl amine compounds with one or two multi-functional compounds. For example, the mercapto or amine functionality of silane compounds a) i) will react with the 3 or 4 functional groups of the a) ii) compounds, resulting in trisilane or tetrasilane reaction products, as "y" is 3 or 4.

Similarly, the cyanato functionality of the b) silane compound will react with the 3 or 4 functionalities of the tri- or tetra-functional b) hydroxyl compound (y=3 or 4), resulting in trisilane or tetrasilane reaction products. Either the c) i) tri- or tetra-functional amine compound or the disilyl amine will react with the c) ii) silane compounds to form a trisilane or tetrasilane reaction product. Further, the d) i) disilyl amine will react with both functionalities of the d) ii) diisocyanate to form a tetrasilane reaction product.

It is therefore respectfully requested that the 35 USC §112 rejection be withdrawn.

35 USC §102(b) Rejection

Claim 1 has been rejected pursuant to 35 USC §102(b) over Schmaltstieg et al. for reasons of record, set forth in the Office Action at Page 3. Applicants respectfully traverse.

Schmaltsteig et al. disclose a product of the reaction of a silane containing component, and either a monomeric polyisocyanate, or a polyisocyanate adduct, or an NCO prepolymer, to form a silane containing reaction product. The alkoxysilane of Schmaltsteig et al. is not reacted with a silane terminated polyurethane prepolymer component in combination with a silane terminated silane-terminated monomeric diisocyanate component to form the reaction product as presently claimed.

The disclosed compound which contains the alkoxy silane and hydantoin groups has no well defined silane terminus, but rather exhibits a silane side chain. The reaction product compound as defined in Schmaltsteig et al. exhibits one such silane side chain attached to the hydantoin moiety, as well as one or more R groups (R and COOR) that are also attached to the hydantoin moiety.

Applicants respectfully request that the 35 USC §102(b) rejection of claim 1 be withdrawn.

35 USC §103(a) Rejections

Claims 1, 2, 6-9, 12, 13, 16, 18-31, 35-38, 41, 42, 45, 47-66, 68, 70-72, 75, 76, 79, 81 and 82 have been rejected pursuant to 35 USC §103(a) over Johnston et al. '170 in view of Fenn et al. '246 for reasons of record, set forth in the Office Action at Pages 4-5. Applicants respectfully traverse.

Johnston et al. disclose a combination of a silylated polymer and a silane adhesion promoter such as an aminosilane. It is admitted in the Office Action that Johnston et al. does not disclose silane terminated monomeric diisocyanate components. The Office Action alleges that Fenn et al. supply this teaching.

Fenn et al. disclose reacting a silane coupling agent (an aminosilane) with a polyisocyanate oligomer and a silane functional polymer to form a clear coating. The silane functional polymers disclosed do not include polyurethane polymers. The oligomer disclosed as being operative in providing the clear coating is an adduct of trimethylolpropane and tetramethyl xylene diisocyanate, which is not silane terminated. Fenn et al. disclose that in comparison, the use of an oligomer such as the isocyanurate trimer of hexamethylene diisocyanate in the combination results in an undesirable cloudy film.

The combination of the coating composition of Fenn et al. with the sealant composition of Johnston et al. fails to suggest the claimed composition, formulation, and method. The oligomers of Fenn et al. are not silane terminated monomeric

diisocyanates. Further, the fact that these oligomers are diisocyanates does not ensure that they are operative in the coatings of Fenn et al., as only those oligomers that were adducts of a further non-silane, non-isocyanate component were found to be acceptable.

Besides there being no motivation to combine the coating composition of Fenn et al. with the sealant composition of Johnston et al., there would be no reasonable expectation of success to improve the properties of a sealant composition by adding a silane terminated monomeric diisocyanate, when the oligomeric diisocyanates taught in Fenn may or may not provide useful properties, depending on what non-silane, non-diisocyanate component is or is not present.

It is respectfully requested that the 35 USC §103(a) rejection of claims 1, 2, 6-9, 12, 13, 16, 18-31, 35-38, 41, 42, 45, 47-66, 68, 70-72, 75, 76, 79, 81 and 82 over Johnston et al. in view of Fenn et al. be withdrawn.

Claims 1, 2, 6-9, 12, 13, 16-31, 35-38, 41, 42, 45-66, 68, 70-72, 75, 76, and 79-82 have been rejected pursuant to 35 USC §103(a) over Roesler et al. (US 2006/0173140 A1) in view of Fenn et al. '246 for reasons of record, set forth in the Office Action at Pages 5-6. Applicants respectfully traverse.

Roesler et al. disclose a sealing composition comprising a polyether urethane polymer containing two or more reactive silane groups, and a polyether urethane polymer containing one reactive silane group. It is admitted in the Office Action that Roesler et al. does not disclose silane terminated monomeric diisocyanate components. The Office Action alleges that Fenn et al. supply this teaching.

Fenn et al. has been discussed above. The combination of the coating composition of Fenn et al. with the sealant composition of Roesler et al. fails to suggest the claimed composition, formulation, and method. The oligomers of Fenn et al. are not silane terminated monomeric diisocyanates. Further, the fact that these oligomers are diisocyanates does not ensure that they are operative in the coatings of

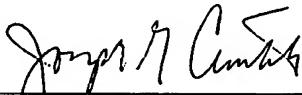
Fenn et al., as only those oligomers that were adducts of a further non-silane, non-isocyanate component were found to be acceptable.

Besides there being no motivation to combine the coating composition of Fenn et al. with the sealant composition of Roesler et al., there would be no reasonable expectation of success to improve the properties of a sealant composition by adding a silane terminated monomeric diisocyanate, when the oligomeric diisocyanates taught in Fenn may or may not provide useful properties, depending on what non-silane, non-diisocyanate component is or is not present.

It is respectfully requested that the 35 USC §103(a) rejection of claims 1, 2, 6-9, 12, 13, 16-31, 35-38, 41, 42, 45-66, 68, 70-72, 75, 76, and 79-82 over Roesler et al. in view of Fenn et al. be withdrawn.

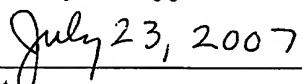
In view of the amendments and remarks contained above, Applicants respectfully request reconsideration of the application, rejoinder of claims 3-5, 14, 15, 32-34, 43, 44, 69, 77 and 78, withdrawal of the 35 USC §102(b), §103(a) and §112 rejections, and request that a Formal Notice of Allowance be issued for claims 1-82. Should the Examiner have any questions about the above amendments or remarks, the undersigned attorney would welcome a telephone call.

Respectfully submitted,


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